AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended) A method of generating feedback information in IQ (In-phase and Quadrature) form for linearity compensation of a communications transmitter using polar modulation and having a communications signal amplifier having an RF input signal and producing an output signal, comprising:

using the output signal, producing an output measurement signal;

using the RF input signal, producing an input measurement signal exhibiting varying phase and a substantially constant envelope;

shifting one of the output measurement signal and the input measurement signal by substantially 90 degrees to produce a quadrature measurement signal; and

mixing input measurement signals with output measurement signals to produce resulting in-phase and quadrature components, the in-phase and quadrature components representing a phase difference between the input measurement signal and the output measurement signal.

2. (Currently Amended) A method of generating feedback information in IQ (In-phase and Quadrature) form for linearity compensation of a communications transmitter using polar modulation and having a communications signal amplifier, comprising:

using a polar modulator to produce a phase-modulated signal and an amplitude signal;

using ~~combining~~ the phase-modulated ~~input~~ signal, producing an input measurement signal exhibiting varying phase and a substantially constant envelope;

amplifying ~~shifting~~ the phase-modulated signal ~~and the amplitude signal~~ to produce an output signal; and

using an IQ demodulator to produce the feedback information for the linearity compensation, the IQ demodulator ~~modulator~~ receiving as input signals the input measurement ~~phase modulated~~ signal and the output signal, and producing as output signals in-phase and quadrature components representing a phase difference between the phase-modulated signal and the output signal.

3. (Previously Presented) A communications signal transmitter for transmitting a data signal by using polar modulation, comprising:

a data modulator responsive to the data signal for producing an amplitude signal and a phase-modulated signal;

an amplifier responsive to the amplitude signal and the phase-modulated signal for producing a desired communications signal; and

feedback circuitry for receiving the phase-modulated signal and the communications signal, and producing, as feedback information in IQ (In-phase and Quadrature) form for linearity compensation of the communications signal transmitter, in-phase and quadrature components representing a phase difference between the phase-modulated signal and the communications signal.

4. (Previously Presented) The apparatus of claim 3, wherein the feedback circuitry comprises:

first and second mixers;

a first pair of signals derived from the communications signal, a different one of the first pair of signals being applied to each of the mixers; and

a second pair of signals derived from the phase-modulated signal, a different one of the second pair of signals being applied to each of the mixers;

wherein the signals of at least one the first pair of signals and the second pair of signals are in quadrature relation to one another.

5. (Previously Presented) The apparatus of claim 3, wherein the data modulator further comprises:

a correction table for correcting the amplitude signal and the phase-modulated signal and

adaptation means responsive to the feedback information for adapting values of the correction table.

6. (Original) The apparatus of claim 5, wherein the adaptation means is based on a statistical algorithm.

7. (Previously Presented) The apparatus of claim 6, wherein the statistical algorithm is the least mean square algorithm.